the Notepad
improving your school's environmental health
e-newsletter

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Features

Tools for Schools
A Proactive Approach

Twenty percent of the U.S. population, nearly 55 million people, spend their days in elementary and secondary schools. Studies show that one-half of the nation's 115,000 schools have problems linked to indoor air quality (IAQ). Students are at greater risk because children are especially susceptible to toxins that cause indoor air problems.

The health and comfort of students and teachers are among the many factors that contribute to learning and productivity in the classroom, which in turn, affects performance and achievement. Recent data suggest that poor IAQ can reduce a person's ability to perform specific mental tasks requiring concentration, calculation, or memory. Poor indoor air, containing a variety of particles and gaseous contaminants, most often occurs when schools fail to follow simple practices that create and help to maintain a healthy indoor environment. Providing a healthy, comfortable environment is an investment in your students and staff.

Failure to respond promptly and effectively to poor indoor air quality problems in schools can result in severe consequences. These include an increase in short-and long-term health problems (leading to more absenteeism), a greater risk that school rooms or buildings will have to be closed and students and staff temporarily relocated, and potential liability problems.

The U.S. Environmental Protection Agency (U.S. EPA) has a program called "Tools for Schools" that helps prevent and diagnose indoor air quality problems. The IAQ Tools for Schools Kit shows schools how to carry out a practical plan of action to improve indoor air problems at little or no cost using straightforward activities and in-house staff. U.S. EPA's new action kit includes checklists for all school employees, a flexible step-by-step guide for coordinating the checklists, an indoor air quality problem solving wheel, a fact sheet on indoor air pollution issues, and sample policies and memos.

For the schools that make a commitment to implement this program, the Indiana Department of Environmental Management is providing an incentive mini-grant of $200 to each school. If you are interested in receiving the incentive grant or have questions regarding the indoor air quality at your school, please contact Tami Johnson, children's environmental health coordinator, at 1-800-451-6027, press 0, and ask for extension 3-5628 or call directly at 317-233-5628.

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The Notepad is an IDEM quarterly electronic publication designed to inform Indiana educators and school administrators about possible environmental health threats in their buildings and to keep them abreast of environmental education resources.

This is a free publication intended to provide general information. Please contact an appropriate IDEM representative for assistance.

Comments, letters to the editor, and any inquiries or questions for "Dear Lori" should be e-mailed to,
earthweek@dem.state.in.us

Tools for Schools

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Teachers play a strong role in the indoor air quality of the classroom because their decisions and activities can affect the sources of pollutants and levels of ventilation within their classrooms. Some teachers, such as art, science, vocational and industrial, arts and home economics instructors, have unique pollutant sources and ventilation equipment to manage.

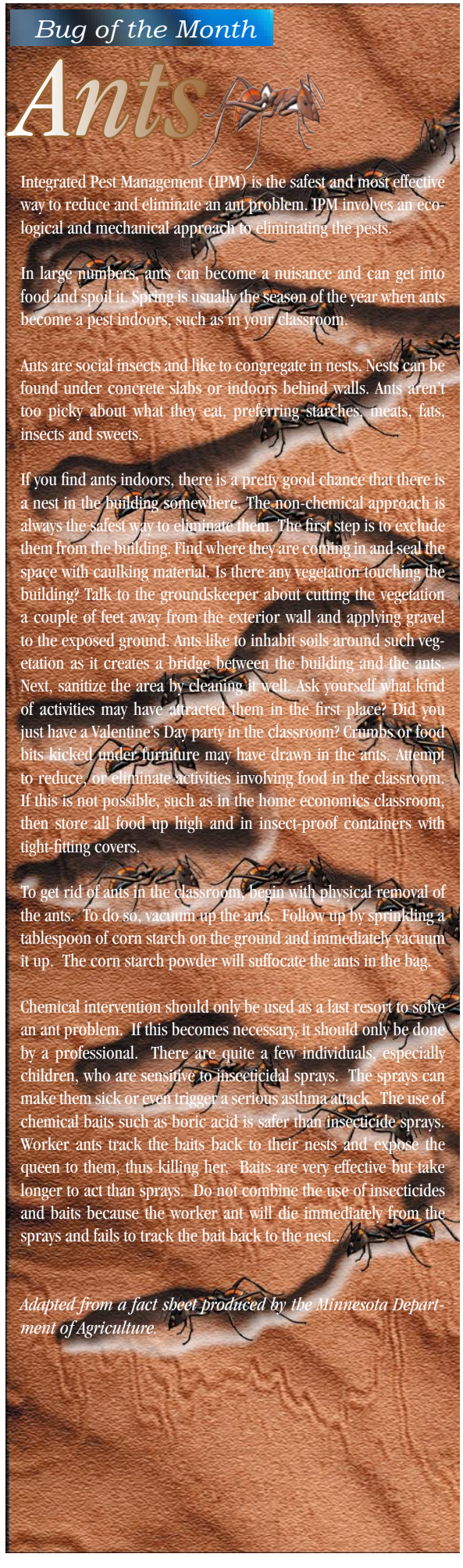
Below is a checklist to help teachers maintain good air quality in their classroom. For more information about maintenance and ventilation, check out **www.epa.gov/iaq/schools/tfs/**.

Check List

- Dust and vacuum thoroughly and regularly.
- Reduce clutter and cardboard storage.
- Report and clean up spills immediately.
- Store food, including animal food, in tightly sealed plastic containers.
- Keep room free of scented cleaners.
- Think about children with allergies and asthma who may be sensitive to animals in the classroom.
- Ensure drain traps in the classroom are filled regularly.
- Flush toilets at least once a week if they are not used regularly.
- Report any condensation on window sills, vents or other surfaces.
- Report any visual mold or water damage on surfaces or earthy, musty smells to maintenance.
- Check for leaks or water damage from roofs or plumbing.
- Stop changing thermostat settings or opening windows to try to control temporary fluctuations in temperature. This can worsen comfort problems and also have an adverse effect on other parts of the school.
- Maintain temperature between 72°F-76°F.
- Maintain relative humidity at 50-60%.
- Check and make sure your air vents are working properly. You can do this with a simple tissue test. Hold a piece of tissue paper near the air supply vent(s). If air is flowing, the tissue will flutter away from the supply vent.
- Make sure that the airflow on the unit ventilator is not obstructed by books, papers, furniture, or other obstacles. Never store anything on top of unit ventilators.
- Confirm that fume hoods where science projects, welding or spray painting occurs is venting out the air pollutants.
- Follow the safety guidelines for art supplies such as solvents, inks, adhesives, glues, varnishes, flammables, biological products and lacquers and make sure they have the proper labeling.
- Buy the least toxic materials available for classroom projects.
- Know your chemicals. Do not store reactive chemicals next to each other.
- Follow disposal guidelines for corroded, white, powdery chemicals.
- Label all hazardous supplies with dates.
- Create a spill control plan.
- Follow recommended guidelines for compressed gases, grinding, fuels, soldering, and welding supplies.
- Request Material Safety Data Sheets from your suppliers.

Bug of the Month

Ants



Integrated Pest Management (IPM) is the safest and most effective way to reduce and eliminate an ant problem. IPM involves an ecological and mechanical approach to eliminating the pests.

In large numbers, ants can become a nuisance and can get into food and spoil it. Spring is usually the season of the year when ants become a pest indoors, such as in your classroom.

Ants are social insects and like to congregate in nests. Nests can be found under concrete slabs or indoors behind walls. Ants aren't too picky about what they eat, preferring starches, meats, fats, insects and sweets.

If you find ants indoors, there is a pretty good chance that there is a nest in the building somewhere. The non-chemical approach is always the safest way to eliminate them. The first step is to exclude them from the building. Find where they are coming in and seal the space with caulking material. Is there any vegetation touching the building? Talk to the groundskeeper about cutting the vegetation a couple of feet away from the exterior wall and applying gravel to the exposed ground. Ants like to inhabit soils around such vegetation as it creates a bridge between the building and the ants. Next, sanitize the area by cleaning it well. Ask yourself what kind of activities may have attracted them in the first place? Did you just have a Valentine's Day party in the classroom? Crumbs or food bits kicked under furniture may have drawn in the ants. Attempt to reduce, or eliminate activities involving food in the classroom. If this is not possible, such as in the home economics classroom, then store all food up high and in insect-proof containers with tight-fitting covers.

To get rid of ants in the classroom, begin with physical removal of the ants. To do so, vacuum up the ants. Follow up by sprinkling a tablespoon of corn starch on the ground and immediately vacuum it up. The corn starch powder will suffocate the ants in the bag.

Chemical intervention should only be used as a last resort to solve an ant problem. If this becomes necessary, it should only be done by a professional. There are quite a few individuals, especially children, who are sensitive to insecticidal sprays. The sprays can make them sick or even trigger a serious asthma attack. The use of chemical baits such as boric acid is safer than insecticide sprays. Worker ants track the baits back to their nests and expose the queen to them, thus killing her. Baits are very effective but take longer to act than sprays. Do not combine the use of insecticides and baits because the worker ant will die immediately from the sprays and fails to track the bait back to the nest..

Adapted from a fact sheet produced by the Minnesota Department of Agriculture.

Dear Lori

Lori F. Kaplan is the commissioner of the Indiana Department of Environmental Management. Do you have a question you would like to ask Lori? Submit your questions electronically to **earthweek@dem.state.in.us** *and your question (with Lori's response) may appear in the next edition of the Notepad.*

Dear Lori: ***My students enjoy hearing guest speakers, especially professionals speaking about their day-to-day activities in their jobs. Do IDEM employees ever visit schools?***

Indeed, we do! In addition to year-round outreach to Indiana's schools, a specific effort is made each spring to visit students in celebration of Earth Week. Would your students enjoy creating and eating an "edible landfill" or designing a mock ground water aquifer to learn about potential contamination? These are examples of interactive presentations IDEM is happy to offer to Hoosier classrooms every spring. The interactive presentations provide students with examples of environmental careers while teaching them about their environment. For more information on Earth Week 2002, or our environmental education efforts in general, please contact Chad Trinkle at 1-800-451-6027.

Dear Lori: ***Have you seen any environmental projects at schools around the state that have been particularly impressive?***

One of my favorite programs is the "Water Watchers" program from Delphi Community High School in Carroll County. By taking the classroom outside into the natural environment, students often learn lessons by first-hand experience that might not otherwise hit home. The school is fortunate to reside near the Wabash River and Deer Creek, as well as the Delphi Historic Trails system, and utilizes this opportunity to teach students about the importance of protecting Indiana's waterways.

This program is a hands-on experience for the students, who collect data and sample the water from various sources around the school grounds. The strength of this program lies in its success at creating an integrated and interdisciplinary approach to the outdoor educational experience. Not limiting the project solely to science, the school integrates the activities into the social sciences and English classes as well. The students are exposed to standard scientific procedures through water quality testing, data analysis, and scientific research. In addition, the project allows students to see a practical use for their classroom efforts by exploring agricultural, societal, business, communication, and technological issues. Students are given an opportunity to interpret their outdoor experiences through painting, poetry, and music inspired by their activities.

The experience of outdoor education provides students with a strong foundation of practical knowledge and understanding of crucial issues facing our environmental health and future. Delphi Community High School is a great example of the innovative and successful programs available to Hoosier students. For more information on this project, please contact Rachel O'Neil at 1-800-451-6027.

Disposal Dilemma

Indiana Schools Become

What do you think of when you hear the word mercury? Quicksilver, "Mad as a Hatter", emergency response team? Wait a minute. What was that last one? Yes, you read correctly – emergency response team.

Indiana has seen a rash of mercury spills in schools across the state and all have come with costly clean-ups, strong public concern, and obvious health hazards. We want to help you avoid a similar situation from happening at one of your schools and we invite your school corporation to participate in the the Mercury Awareness Program (M.A.P.).

M.A.P. Mercury Awareness Program

Mercury's threat to the environment and to our children cannot be overstated. Children are more vulnerable to mercury poisoning as they have not yet developed the natural barrier that protects the brain and central nervous system. We urge you to remove this danger from your students' environment. Participation is easy!

- ☐ Inventory all mercury-containing items in your school buildings.
- ☐ Take all unwanted mercury items to your local solid waste management district to have them recycled free of charge (excluding fluorescent bulbs, though some SWMDs also offer this service). Be sure and call the district first to let it know you are doing this. Some local districts may not accept the items, but we will help you find one that does.
- ☐ Plan to phase out mercury-containing devices and purchase mercury free alternatives when the time comes.
- ☐ Confirm your participation by faxing the pledge sheet to IDEM at 317-233-6647, and receive statewide recognition as an environmental steward.

Contact Chad Trinkle toll-free at 1-800-451-6027 to receive a copy of the pledge form or view it on the Internet at ***http://www.In.gov/idem/kids/mercury/***. A listing of the local solid waste management districts can be viewed at ***http://www.state.in.us/idem/oppta/recycling***. IDEM staff are also available to provide technical assistance and help schools inventory all mercury-containing items. Don't wait for a spill to happen in your school. *Get the mercury out now!*

Burning Question

What is in my neighborhood?

Have you ever wondered just what is going on with that old factory next door or where dangerous chemicals are being stored in your community? Use IDEM's online tools to find out what environmental threats might be lurking in your community.

The following applications are designed to give you and your students user-friendly access to graphic and numerical information about your local environment.

Envirofacts

Envirofacts allows you to find the addresses of business locations whose activities are being monitored by IDEM. It also discloses the nature of what is being monitored, whether it is an underground storage tank, a spill of some kind, or simply a hazardous substance whose identity must be disclosed to the public by law. Did you know that satellites are used in this electronic mapping process commonly referred to as a "Global Positioning System" or GPS. The technology is a great subject to incorporate into math classes where graphs and mapping often are taught.

Zip Code Search

IDEM's "Zip Code Search" allows you to look up your neighborhood and, at a glance, research what local activities are regulated by IDEM. The visual format is a map of streets and locations where respective industries or other environmental activities are located. Simply click on the colored dots to find out the nature of the regulated activity. Have students look for environmental information in their neighborhoods and report on it. Ask them how this would impact their choice of a site for their first home, or building a school, for example.

Surf Your Watershed

The concept of a watershed and watershed management is important when discussing environmental issues. A watershed is simply a group of rivers, lakes and streams that drain the land on which you live. What will happen to a spill once it contacts a body of water? Where will it go and who will be affected? Using the watershed approach, we can determine which rivers, streams or lakes will be affected by a contaminant. Use the "Surf Your Watershed" application to determine your watershed address. Print out watershed maps for Indiana. Have younger students color in their watershed and map out bodies of water. For older students, discuss drinking water quality by using the watershed maps. The color code designates areas with drinking water problems because of environmental impacts.

To explore these applications and to search your community, visit our Web site at **www.IN.gov/idem/communityinfo/**.

Money Matters

Source Reduction and Recycling Grants for Indiana Schools

Did you know that IDEM offers grants to help start or expand source reduction, recycling, and education programs in schools? Since 1990, IDEM has given more than $300,000 in grant funds to schools for various projects. The next grant application deadline is May 31, 2002.

School project grants provide funding for pre-school, K-12, and college/university level institutions to start up or expand recycling, source reduction, reuse, buy recycled, and composting programs. Eligible expenses are the purchase of curricula, equipment, and educational promotion. Grant applications must demonstrate a strong commitment and support at the administrative level, as well as have a solid network of students, teachers, and staff members who will be able to keep the program running after implementation. Some examples of projects that have been funded in the past are the purchase of classroom paper recycling collection bins, vermicomposting of cafeteria food wastes, compost supplies for composting school wastes, and environmental-focused curricula. Recent schools that have received grants include Zionsville Community High School for a recycling trailer, Indian Creek High School and Raymond Park Middle School for new school-wide recycling programs, and Templeton Elementary School for vermicompost cafeteria food waste.

Model project grants provide funding for innovative solid waste reduction solutions that may serve as "models" for implementation in other parts of the state. Model grants should address significant solid waste management needs that have not been met within your region. Grant funds are available for feasibility studies, reports, pilot projects, and experimental project implementation. Currently, composting projects, whether standard composting or vermicomposting, are considered model grant projects.

Projects featuring elements of the following priority topics will also receive additional attention in the grant review process. They may also receive additional flexibility on match requirements.

- *Source reduction, reuse or buy recycled programs*
- *School waste reduction projects*
- *School mercury/lead sweeps*
- *Media/public education with a call to action (regional or statewide)*
- *Education to reduce open burning or dumping*

Grant request of up to $50,000 will be reviewed on a case-by-case basis. The next grant application deadline is May 31, 2002. For more information, visit our Web site at ***www.in.gov/idem/oppta/recycling/*** or call 1-800-988-7901.

Health Corner

Mold

Stachybotrys spores / Stachybotrys structure

What is Mold?

Molds are fungi. Molds grow throughout the environment. Tiny particles of mold are present in indoor and outdoor air. In nature, molds help break down dead materials and can be found growing on soil, foods, plant matter, and other items. Molds produce microscopic cells called "spores" which are very tiny and spread easily through the air. Live spores act like seeds, forming new mold growths (colonies) when they find the right conditions. There are different varieties of molds. Some molds are useful as medicines and used in foods. Others cause allergic reactions and can trigger asthma attacks.

Should I be concerned about mold in my school?

Yes, mold should not be permitted to grow and multiply indoors. When this happens, health problems can occur and building materials, goods and furnishings may be damaged.

Can mold make people sick?

Mold can affect the health of people who are exposed to it. People are mainly exposed to mold by breathing spores or other tiny fragments. The type and severity of health effects that mold may produce are usually difficult to predict. The risks can vary greatly from the type of mold one location to another, over time, and from person to person.

Stachybotrys: on a wall

What symptoms might I see?

The most common health problems caused by indoor mold are allergy symptoms. Although other and more serious problems can occur, people exposed to mold commonly report problems such as: nasal and sinus congestion, cough, wheeze/breathing difficulties, sore throat, skin and eye irritation, and upper respiratory infections.

Are the risks greater for some people?

The long-term presence of indoor mold growth may eventually become unhealthy for anyone. The following types of people may be affected more severely and sooner than others: infants and children, elderly people, people with respiratory conditions or sensitivities such as allergies and asthma, and people with weakened immune systems.

Are some molds more hazardous than others?

Some types of mold can produce chemical compounds called mycotoxins. Molds that are able to produce toxins are common. In some circumstances, the toxins produced by indoor mold may cause health problems. However, all indoor mold growth is potentially harmful and should be removed promptly, no matter what types of mold is present or whether it can produce toxins.

How do I tell if I have a mold problem?

The most practical way to find a mold problem is by using your eyes to look for mold growth and by using your nose to locate the source of a suspicious odor. If you see mold or if there is an earthy or musty smell, you should assume a mold problem exists. Look for visible mold growth (may appear cottony, velvety, granular, or leathery and have varied colors of white, gray, brown, black, yellow, and green). Look for signs of discoloration or water damage. Look for water leaks, standing water, water stains, and condensation problems. Search behind and underneath materials (carpet and pad, wallpaper, vinyl flooring, sink cabinets), furniture, or stored items (especially things placed near outside walls or on cold floors). Sometimes destructive techniques may be needed to inspect and clean enclosed spaces where mold and moisture are hidden (e.g., open a wall cavity).

Should I test for mold?

The U.S. Environmental Protection Agency does not recommend testing for mold. Instead, you should simply assume there is a problem whenever you see mold or smell mold odors. Testing should never take the place of visual inspection and it should never use up resources that are needed to correct moisture problems and remove all visible growth. Sometimes, mold growth is hidden and difficult to locate. In cases, a combination of air (outdoor and indoor air samples) and bulk (material) samples may help determine the extent of contamination and where cleaning is needed. However, mold testing is rarely useful for trying to answer questions about health concerns.

What can I do to prevent mold growth?

- *Reduce indoor humidity (to 30-60 percent) to decrease mold growth by: venting bathrooms, dryers, and other moisture-generating sources to the outside;*
- *Use air conditioners and dehumidifiers;*
- *Increase ventilation; and*
- *Use exhaust fans whenever cooking, dishwashing, and cleaning.*
- *Reduce the potential for condensation on cold surfaces (i.e., windows, piping, exterior walls, roof, or floors) by adding insulation.*
- *Clean and dry any damp or wet building materials and furnishings within 24-48 hours to prevent mold growth. If porous materials such as ceiling tiles and carpeting remain wet for longer than 24-48 hours, they may need to be replaced.*
- *Fix leaky pipes and roofs. Do not install carpeting in areas where there is a perpetual moisture problem, (i.e., by drinking fountains, by classroom sinks, or on concrete floors with leaks or frequent condensation).*
- *Clean mold off hard surfaces with water and detergent or a bleach solution, and make sure it is completely dry.*

There is no practical way to eliminate all mold and mold spores in the indoor environment. The best way to control indoor mold growth is to control moisture.

Super School

Greenwood High School

Schools across Indiana have been promoting proper environmental stewardship among their students for many years. From building outdoor classrooms to student run ecology clubs, students more than ever are becoming involved in school programs that help protect our environment. However, students, teachers, and administrators at Greenwood High School are taking environmental stewardship to the next level. Located in Johnson County, Greenwood High School boasts a student population of over 1,000 and has approximately 70 staff members.

Students at Greenwood had been running a successful school-wide paper recycling program that resulted in the collection of more than two tons of recycled paper products a month when science teacher, Andy Nelson, took advantage of monies available from IDEM. Working with IDEM, the Johnson County Solid Waste Management District (JCSWMD), and the Regional Household Hazardous Waste Task Force (RHHWTF), Greenwood High School became the first school in Indiana to be officially recognized as being "mercury free." All mercury-containing items in the school were identified and properly recycled through the JCSWMD with IDEM grant dollars. During the fall of 2001, the school went one step further and cleaned out its chemistry and biology chemical storage room, decreasing the chance for a bad spill or accident. This time, using grant dollars from the U.S. Environmental Protection Agency and technical assistance from IDEM and the RHHWTF, all unwanted, unused, or expired chemicals were identified and removed from school grounds and properly disposed.

Greenwood High School also works with the JCSWMD to help facilitate a countywide shoe recycling program. Residents and students can bring old or unwanted shoes to designated locations. Students in the school's Service Learning Class then help to collect and sort the shoes. Finally, with the help of JCSWMD staff, shoes are shipped to a textile company in Texas where they will eventually be sent to needy children in Third World countries. The Service Learning Class also helps the JCSWMD assemble and distribute a popular publication, "*Trash Talk*," that teaches Johnson County students about current solid waste and recycling issues.

Greenwood High School administration and teachers have taken many steps to help protect our environment and to protect their students from different environmental threats. Saving the earth is tough work and we can't do it alone! As you can see, Greenwood High School staff took advantage of several partnerships that resulted in great outcomes.

Recycling Bin

Conferences and Events

Do you need to "*recycle*" some of your lessons plans or spice them up with an environmental twist? Check out these annual conferences where you can learn about some great new classroom projects, pick up new lesson plans, curricula, ideas, and much more!

What: Earth Day Indiana
http://www.earthdayindiana.org
Where: Downtown Indianapolis
When: April 27, 2002 from 11:00 am to 5:00 pm
Who: General public is welcome
Why: The festival features exhibits with information from non-profit organizations, businesses and governmental agencies on a range of vital environmental issues. Come experience a variety of delicious foods and shop for environmentally friendly merchandise. A children's tent includes free crafts, activities and demonstrations for children of all ages

What: IRC – Indiana Recycling Coalition Inc.
http://www.indianarecycling.org
Where: Indianapolis Marriott East
When: May 7-8, 2002
Who: Recycling Stakeholders, Educators – formal and nonformal
Why: Come hear the latest on solid waste and recycling issues and take home hands-on activities to teach these topics in your classroom.

What: EEAI – Environmental Education Association of Indiana
http://www.goshen.edu/eeai/conference.htm
Where: Waycross Episcopal Conference Center, Brown County
When: November 22-24, 2002
Who: Environmental Educators - formal and nonformal
(reduced fees for EEAI members)
Why: Experience breakout sessions on everything from biodiversity to Indiana bats to creating a school nature park, go on day field trips, view exhibits, attend social events, and more!

Contact your local Solid Waste Management District and IDEM to investigate how we can work together to make your school the next Super School. The next edition of "*The NotePad*" will feature another environmentally school. Will it be yours?